

## **REMARKS/ARGUMENTS**

Claims 1-3, 5 and 6, 9-12, 16 and 18-20 are pending in the application; claims 1, 5, 6, 10, 12 and 16 are currently amended; claims 4, 7, 8, 13, 14, 15 and 17 are canceled; and claims 18-20 are new.

The drawings were objected to since they did not show an at least one meter chamber induction coil at least partially surrounding the meter chamber, and a tuning capacitor in parallel with an induction coil to form a tank circuit. Applicants submit herewith replacement drawing sheet 8/8 to show the at least one meter chamber induction coil at least partially surrounding the meter chamber, and a tuning capacitor in parallel with an induction coil to form a tank circuit. The specification is amended to identify drawing reference numbers for the at least one meter chamber induction coil and the tuning capacitor. Applicants submit that the objection to the drawings has been overcome.

Claims 10-17 were objected to because of an informality in independent claim 10, namely the word "value" recited at line 9 is misspelled; it should read as "valve". Claim 10 has been amended to correct the informality. Applicants submit that the objection to claims 10-12 and 16 (claims 13, 14, 15 and 17 are canceled) has been overcome.

Claims 1-3; 7-11, 14 and 17 were rejected under 35 U.S.C. 102(b) as being anticipated by B.E.L. DeMare (US 2,253,421).

Claim 12 was rejected under 35 U.S.C. 103(a) as being unpatentable over B.E.L. DeMare in view of Bohnet et al. (US 2,570,311).

Claims 4-6, 13 and 15-16 were objected to as being dependent upon a rejected base claim, but found to be allowable if rewritten in independent form including all of the limitations of the base claim and intervening claims. New claim 18 includes all the limitations of the base claim and intervening claims. New claim 18 includes all the limitations of base claim 1 and dependent claim 4; claims 5 and 6 are amended to be dependent on new claim 18; new claim 19 includes all the limitations of base claim 10 and dependent claim 13; new claim 20 includes all the limitations of base claim 10, dependent claim 15, and intervening claim 14; claim 16 is amended to be dependent on new claim 20. Applicants submit new claims 18, 19 and 20, and amended claims 5, 6 and 16 overcomes the objection to claims 4-6, 13 and 15-16.

Rejection of claims 1-3, 7-11, 14 and 17 as being anticipated by B.E.L. DeMare

The "feed chamber" in B.E.L. DeMare comprises ladle 16 which is portable and used to carry liquid steel (feed material) from a melting furnace to vessel 10 (page 2, left col., lines 53-56). The "melt chamber" in B.E.L. DeMare comprises vessel 10 mounted on the lid of vacuum chamber 1 (page 2, left col., lines 27 and 28). The "meter chamber" in B.E.L. DeMare is removal ladle 17 that is placed in the vacuum chamber. In amended claim 1 of the present application, the melt chamber is connected directly to the feed chamber whereby sealing the sealable supply opening of the feed chamber and unsealing the sealable delivery opening of the feed chamber permits the transfer of the charge from the feed chamber to the melt chamber without subjecting the melt in the melt chamber to ambient environment. See **FIG. 8** of the present application. The apparatus in B.E.L. DeMare exposes the melt in the "melt chamber" (vessel 10) to ambient environment. The "sealable delivery opening" in B.E.L. DeMare's ladle 16 comprises nozzle 23 through which melt flows in stream 24 into the open vessel 10. As shown in the B.E.L. DeMare figure, stream 24 is exposed to ambient environment and the B.E.L. DeMare specification does not suggest isolating the melt in vessel 10 from ambient environment except for the placement of slag 15 on top of the melt in the vessel (page 2, right col., lines 28 and 29). See also page 3, left column, line 31, where the vessel is recited as an "open vessel." Further as shown in the B.E.L. DeMare figure, melt stream 28 through nozzle 11 in vessel 10 flows into vacuum chamber 1 in which the "meter chamber," namely, removable ladle 17, sits. That is, the inlet of the "meter chamber" (ladle 17) in B.E.L. DeMare is not directly connected to the melt chamber outlet as recited in presently amended claim 1 of the present application. The flow of stream 28 through vacuum chamber 1 is required to degassify metal in the stream (page 2, right col., lines 17-19). The removable ladle 17 is removed from the vacuum chamber and taken to the place where the pouring of the melt into molds is to be done (page 2, right col., lines 58-61). Further there is nothing in the B.E.L. DeMare disclosure that suggests a "metered" discharge from ladle 17. In the present invention, since melt fills the meter chamber, the meter chamber discharges a measured melt based on the volume of the meter chamber (present specification, page 7, line 29, through page 8, line 2). In previously presented claim 2 of the present application, the melt chamber itself is inductively heated, whereas B.E.L. DeMare discloses inductively heating only

the melt in vessel 10. Applicants submit that currently amended claim 1, and claims 2 and 3, which are dependent on claim 1, are not anticipated by B.E.L. DeMare.

Applicants cancel claims 7 and 8; therefore the rejection of these claims as being anticipated by B.E.L. DeMare is moot.

B.E.L. DeMare discloses an air-admission valve 25 in the lid of vacuum chamber 1 (page2, left col., lines 42 and 43) and a pipe 27. Previously presented claim 9 in the present application recites a gas system whereby a gas can be selectably supplied to or withdrawn from the feed chamber; selectably supplied to the melt chamber; and selectably supplied to or withdrawn from the meter chamber. In B.E.L. DeMare air is supplied to, or withdrawn from, the vacuum chamber in which removable ladle 17 sits; B.E.L. DeMare does not teach supplying or withdrawing air directly from ladle 16 ("feed chamber"); vessel 10 ("melt chamber"); and ladle 17 ("meter chamber"). Applicants submit that claim 9, which is dependent on amended claim 1 is not anticipated by B.E.L. DeMare.

In currently amended claim 10 the inlet of a meter chamber is directly connected to the melt chamber outlet by a melt chamber outlet valve. Closing the meter chamber outlet valve and opening the melt chamber outlet valve fills the meter chamber with melt from the melt chamber. Closing the melt chamber outlet valve and opening the meter chamber outlet valve discharges the metered volume of melt in the meter chamber. As discussed above in B.E.L. DeMare vessel 10 ("melt chamber") is not directly connected to ladle 17 ("meter chamber"); outlet nozzle 11 of vessel 10 opens to vacuum chamber 1 in which ladle 17 sits. Further the discharge from ladle 17 is not a "metered discharge" as discussed above. Applicants submit that currently amended claim 10, and previously presented claim 11, which is dependent on claim 10, are not anticipated by B.E.L. DeMare.

Applicants cancel claims 14 and 17; therefore the rejection of these claims as being anticipated by B.E.L. DeMare is moot.

Rejection of claim 12 as being obvious over B.E.L. DeMare in view of Bohnet et al.

Currently amended claim 12, which is dependent on currently amended claim 10, recites the step of connecting a tuning capacitor in parallel with one of the one or more induction coils to form a passive tank circuit and magnetically coupling the induction coil in the passive tank circuit with at least one of the other one or more induction coils

connected to an ac power supply to induce the ac current in the passive tank circuit. Bohnet et al. discloses a tuning capacitor in parallel with an inductor coil connected to an ac power supply; that is, the tank circuit in Bohnet et al. is an active tank circuit. In currently amended claim 12 the tank circuit is a passive tank circuit, which is not directly connected to an ac supply, but has an ac current flow induced in it by magnetic coupling of the coil in the passive tank circuit with the coil in the active circuit that is connected to an ac power supply that produces the ac current flow in the active coil circuit. In light of the above discussion of B.E.L. DeMare and Bohnet et al., Applicants submit that amended claim 12, which is dependent on amended claim 10 is not obvious over B.E.L. DeMare in view of Bohnet et al.

Applicant respectfully requests reconsideration and allowance of all pending claims.

Respectfully submitted,

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